P-211 - MICROBIOLOGICAL QUALITY OF READY-TO-EAT FRUITS AND VEGETABLES PURCHASED AT RETAIL IN PORTUGAL

Maria João Cardoso[1]; Diana Rocha Silva[1]; Vânia Ferreira[1]; Paula Teixeira[1]

1 - Universidade Católica Portuguesa, CBQF – Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia, Rua Arquiteto Lobão Vital, Apartado 2511, 4202-401 Porto, Portugal

Background
Global production, distribution and consumption of fresh produce has increased since consumers today are more aware of its importance on providing micronutrients and fiber. Ready-to-eat (RTE) fruits and vegetables are widely available at retail, and are eaten raw, usually without additional washing procedures [(1)]. Thus, pathogen contamination may represent a serious risk to consumers. The microbiological quality and safety of RTE fruits (n=10) and vegetables (15) collected at four supermarkets from the city of Porto was evaluated in this study.

Method
For each sample, the microbiological parameters were tested accordingly to ISO standards, including enumeration of mesophilic bacteria (ISO 4833-1:2013), total coliforms (ISO 4832:2006), moulds and yeasts (ISO 21527-1:2008), *Escherichia coli* (ISO 16649-2:2001) and coagulase-positive *Staphylococcus* (ISO 6888-2:1999). The detection of foodborne pathogens *Listeria monocytogenes* (ISO 11290-1:1996) and *Salmonella* (ISO 6579:2002) was also tested.

Results & Conclusions
Accordingly to the guidelines applied in Portugal [(2)], several samples showed poor microbiological quality (mesophilic bacteria – 76% unsatisfactory; 20% borderline; yeasts – 44% unsatisfactory; 52% borderline; moulds – 32% unsatisfactory; 56% borderline) and hygiene indicators microorganisms also exhibited high counts (coliforms – 68% unsatisfactory; 8% borderline; *E. coli* – 8% unsatisfactory). High counts of *E. coli* were obtained in two RTE salad samples. Additionally, *L. monocytogenes* was found in one package of water cress. The screened samples showed no positive results for presence of *Salmonella*. *Staphylococcus* coagulase positive counts were classified as satisfactory in all 25 samples.

The high results obtained in quality indicator organisms tend to limit the product's shelf-life once it may accelerate spoilage due to acid and gas production [(3,4)]. From the 25 samples, only one was found satisfactory for all the microbiological parameters analysed. Detection of *L. monocytogenes* represents a safety concern.

References & Acknowledgments
This work was supported by National Funds from FCT - Fundação para a Ciência e a Tecnologia through project 'UID/Multi/50016/2013'and by SafeConsumE – European Union Horizon2020 Grant Agreement No 727580.

1 - Food Microbiol. 2012 Oct;32(1):1-19.
2 - Rev. Ordem dos Farm 64, 66–68.
3 - Food Safety Authority of Ireland, 2016. Guidelines for the Interpretation of Results of Microbiological Testing of Ready-to-Eat Foods Placed on the Market (Revision 2).
4 - Health Protection Agency, 2009. Guidelines for Assessing the Microbiological Safety of Ready-to-Eat Foods Placed on the Market.

Keywords: Food Safety, Consumer, Ready-to-Eat, Microbiological Quality